Contacts and further information

Local contact
- Clinical pharmacy or visiting pharmacy
- Diabetes education service
- Director of Medical Services
- Visiting or local endocrinologist or diabetes physician

For urgent medical advice/support, contact your nearest regional or metropolitan hospital.

Country Health SA Local Health Network - Diabetes
www.diabetesoutreach.org.au
Ph: 08 8226 7168

Australian Diabetes Society
www.diabetessociety.com.au

Diabetes management in general practice - guidelines for type 2 diabetes.
www.racgp.org.au

Diabetes Australia
www.diabetesaustralia.com.au

National Diabetes Service Scheme
www.ndss.com.au

Acknowledgements

- Flinders Medical Centre
- Repatriation General Hospital
- Pt Augusta Hospital

Enquiries to CHSA Diabetes Services
08 82267168

Government of South Australia
SA Health

Country Health SA Local Health Network

User guide *Basal-bolus Insulin Dosing Chart: Adult*

PLEASE NOTE: The *Basal-bolus Insulin Dosing Chart* should **not** be used for emergencies such as diabetic ketoacidosis, hyperglycaemic hyperosmolar state or for peri operative management or paediatric diabetes.

Developed by:	CHSA LHN Diabetes Services
Approved by:	Clinical Cabinet
Effective date:	2nd April 2014
Version:	1
Last reviewed:	
Next review due:	April 2015

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Notes

Notes

Purpose and background

Inpatients with diabetes can have suboptimal pre-admission glycaemic control. Medical stress (eg ischaemia, sepsis, inflammation) can worsen glucose control. In addition, patients in the post-surgical phase are also at risk of hyperglycaemia. Optimising inpatient glucose levels (5-10mmol/L) during hospital admission has been shown to improve morbidity and mortality, patient outcomes and length of stay.

The purpose of this user guide is to support clinicians in using the *CHSA Basal-bolus Insulin Dosing Chart: Adult* in a safe and effective way.

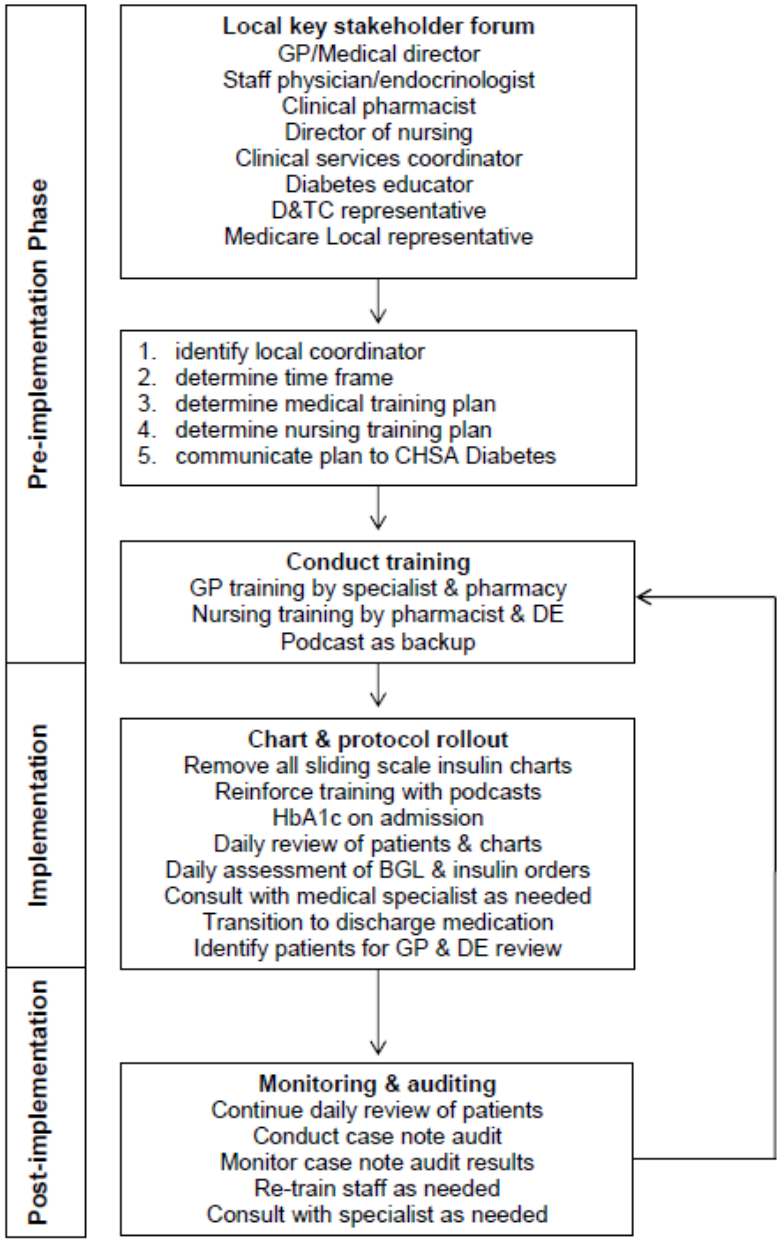
Basal-bolus insulin (BBI) refers to an insulin regime comprising the combination of a basal insulin with bolus mealtime insulin. It aims to mimic the natural physiological insulin pattern.

The following are general requirements for using the *Basal-bolus Insulin Dosing Chart: Adult*

- BBI approach is only used for patients who are in hospital and experiencing high BGL's.
- BGL's should be monitored at least 4 times a day and reviewed daily with appropriate insulin dose changes made.
- The chart should not be used in diabetic ketoacidosis, hyperglycaemic hyperosmolar state, perioperative or in paediatrics.

To view the chart see Appendix 1.

Protocol implementation flow chart



Basal-Bolus Insulin for In-patients with Diabetes Mellitus

Which patients do I use it for?

1. Inpatients with anticipated or current hyperglycaemia where current diabetes therapy is insufficient eg one or more blood glucose levels (BGL) >10 mmol/L within a 24 hour period.
2. Transitioning from an IV insulin infusion.
3. Use instead of subcutaneous sliding scale insulin regimens.

Which patients don't I use it for?

1. Diabetic ketoacidosis or hyperosmolar hyperglycaemic state where insulin infusion is required.
2. Patients who have target (5-10 mmol/L) blood glucose on their usual treatment (oral and/or insulin). This can be written up on the National Medication Chart.
3. Not for paediatric use.
4. Anticipated length of stay less than 48 hours

Step 1: Cease any regular oral/injectable* agents or subcutaneous insulin and measure HbA1c to assess pre-admission control.

Step 2: Calculate the Total Daily Insulin Dose requirements as per following table.

Current diabetes treatment		Total initial daily insulin dose
Diet	-	0.3 units/kg
Oral/injectable agents*	-	0.4 units/kg
Subcutaneous insulin	-	Insulin used in last 24 hours
S/C insulin + oral/injectable agents*	-	Insulin used in last 24 hours + 10%
Intravenous infusion ᐞ	-	Four times insulin used in last 6 hours

Step 3: Insulin requirements

a. Glargine (basal) - write up 50% of calculated Total Daily Insulin Dose as glargine insulin. See 'Glargine Insulin' overleaf.

b. Rapid insulin with meals (bolus) - 50% of the calculated Total Daily Insulin Dose is divided into 3 equal doses of rapid acting insulin (Humalog or Novorapid). See 'rapid insulin with meals' overleaf.

c. Correctional rapid insulin (bolus) - Correctional rapid insulin is included on the drug chart overleaf.

Step 4: Write 'see Basal-Bolus Insulin Dosing Chart' on the National Medication Chart to alert nursing staff.

Step 5: Mandatory BGL review is required every day. Aim for all BGLs to be 5-10 mmol/L without requiring correctional rapid insulin.

Step 6: Adjustment strategy

Time BGL taken	HIGH blood glucose (>10mmol/L)	LOW blood glucose (<4mmol/L)
Before breakfast	Increase glargine	Decrease glargine
Before lunch	Increase b/fast rapid insulin	Decrease b/fast rapid insulin
Before tea	Increase lunch rapid insulin	Decrease lunch rapid insulin
2100 hours	Increase tea-time rapid insulin	Decrease tea-time rapid insulin

Adjusting insulin doses

- Reduce the appropriate insulin by 20-25% for hypoglycaemia (i.e.BGL < 4.0 mmol/l)
- Increase insulin by 10-25% for hyperglycaemia, using the amount and pattern of correctional rapid insulin used in the preceding 24-48 hours as a guide.
- Consider changes in the patient's clinical status that may influence insulin requirements eg infection improving, appetite returning, mobility increasing.

Step 7: Stopping basal bolus insulin and transferring to discharge diabetes therapy

Transfer to planned normal therapy 1-2 days prior to discharge as below or when medically stable:

- Discharge on oral/injectable agents* without glargine - reduce night time dose of glargine by 50% and give this as the last dose and commence oral/injectable agents* in the morning (consider eGFR for Metformin dose).
- Discharge on glargine with or without other oral/injectable agents* - administer night time dose of glargine as usual and commence oral/injectable agents* the following day.
- Discharge on alternate insulin eg premix or morning glargine - reduce night time dose of glargine by 50% and commence prescribed insulin and any oral/injectable agents* the following day.

HbA1c	**< 7%**	recommence on usual diabetes treatment.
HbA1c	**7- 8%**	may need increase in usual therapy - arrange follow-up GP appointment.
HbA1c	**> 8%**	will require increase in usual pre-admission treatment – arrange GP and diabetes education follow up.

* metformin, sulphonylureas, DPP4 inhibitors, GLP 1 injectables, glitazones

ᐞ refer to instructions in the Basal Bolus Insulin Dosing Chart User Guide

Appendix 3 - Basal-bolus insulin chart

BASAL-BOLUS INSULIN DOSING CHART: ADULT

MR62

Hospital: .....

Affix patient identification label in this box

UR Number: .....

Surname: .....

Given name: .....

Second given name: .....

D.O.B: __ __ / __ __ / __ __ __ __ Sex: .....

Record Blood Glucose Levels (BGL) immediately premeals and 9pm. Notify MO if blood glucose <4mmol/L (follow hypo protocol) or >20mmol/L or 2 consecutive readings. Daily ketones if prolonged fasting, BGL>15mmol/L, or acutely unwell. Notify MO if blood ketones >1.0 or urine ketones moderate or large.

DATE																	
TIME																	
BGL																	
Ketones																	
Initial																	
Designation																	

DATE																	
TIME																	
BGL																	
Ketones																	
Initial																	
Designation																	

INSULIN DOSES TO BE REVIEWED DAILY

RAPID INSULIN WITH MEALS (Bolus requirement) — **HOLD DOSE IF FASTING**

Circle preferred rapid insulin **Novorapid / Humalog** — **Administer immediately before or with meals**

B'fast	Lunch	Tea		DATE							
B'fast	Lunch	Tea	Name.....	B'fast							
			Sign:.....	Lunch							
Units	Units	Units	Date:..../..../.... Desig:.....	Tea							
B'fast	Lunch	Tea	Name.....	B'fast							
			Sign:.....	Lunch							
Units	Units	Units	Date:..../..../.... Desig:.....	Tea							
B'fast	Lunch	Tea	Name.....	B'fast							
			Sign:.....	Lunch							
Units	Units	Units	Date:..../..../.... Desig:.....	Tea							

CORRECTIONAL RAPID INSULIN — **GIVE THIS DOSE EVEN IF FASTING**

Only needed if BGL > 10 mmol/L. If a correctional dose is required, use the same type of rapid insulin as above. This dose can be combined with the above rapid insulin dose for administration.

BGL (mmol/L)	Extra insulin		DATE							
<10	none	Name:	B'fast							
10.1 - 15	3 units	Sign:	Lunch							
>15	6 units	Date:..../..../.... Desig.....	Tea							

GLARGINE (Lantus) INSULIN Basal requirement — **GIVE THIS DOSE EVEN IF FASTING**

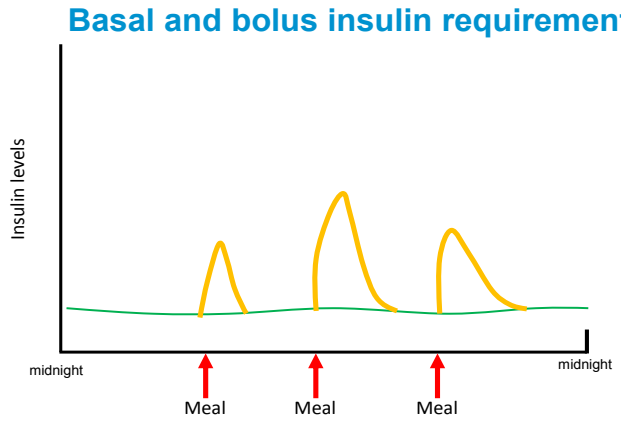
		DATE							
..... units subcut nocte	Name..... Sign:..... Date:..../..../.... Desig.....	2100							
..... units subcut nocte	Name..... Sign:..... Date:..../..../.... Desig.....	2100							
..... units subcut nocte	Name..... Sign:..... Date:..../..../.... Desig.....	2100							

BASAL-BOLUS INSULIN DOSING CHART

MR62

Insulin requirements

The diagram below demonstrates the insulin response to basal metabolism and carbohydrate (CHO) intake.



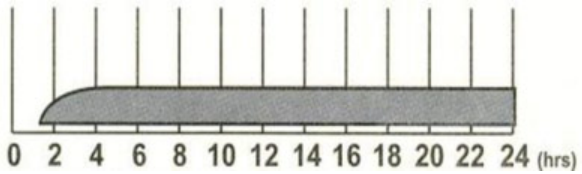
Basal insulin requirements

Basal insulin is required for background metabolic needs and is not related to food. The green coloured line in the diagram above represents the basal insulin needs over a 24 hour period.

Glargine insulin is used to cover basal needs in the BBI Dosing Chart. Glargine is administered at 2100 hours and does not need to be given with food.

Never stop insulin in type 1 diabetes as diabetic ketoacidosis can occur rapidly without background insulin.

Profile of glargine insulin



Bolus (rapid acting insulin) requirements

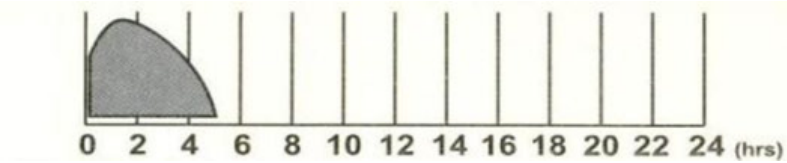
Endogenous bolus insulin is released in response to CHO intake. The yellow coloured curves in the diagram (page 4) demonstrates insulin response to a meal. The more CHO, the more insulin is required. CHO amounts will vary due to loss of appetite, re-introduction of solids over a period of days or fasting.

Rapid acting insulins (Novorapid®, Humalog®, Apidra®), are given only in conjunction with meals (bolus insulin) eg 3 times daily.

NovoRapid

Humalog

Profile of rapid acting insulin



The BBI chart provides two sections for prescribing bolus (rapid acting) insulin

- rapid acting insulin with meals
- correctional rapid insulin with meals.

The mealtime bolus insulin can be topped up with ‘correctional’ rapid acting insulin. An extra 3 units is added if the pre meal BGL is 10-15mmol/L and an extra 6 units if BGL is >15mmol/L.

Appendix 2 - Transition from IV insulin infusion

Patients must not have their IV insulin infusion discontinued until at least 4 hours after commencement of basal (glargine) subcutaneous insulin.

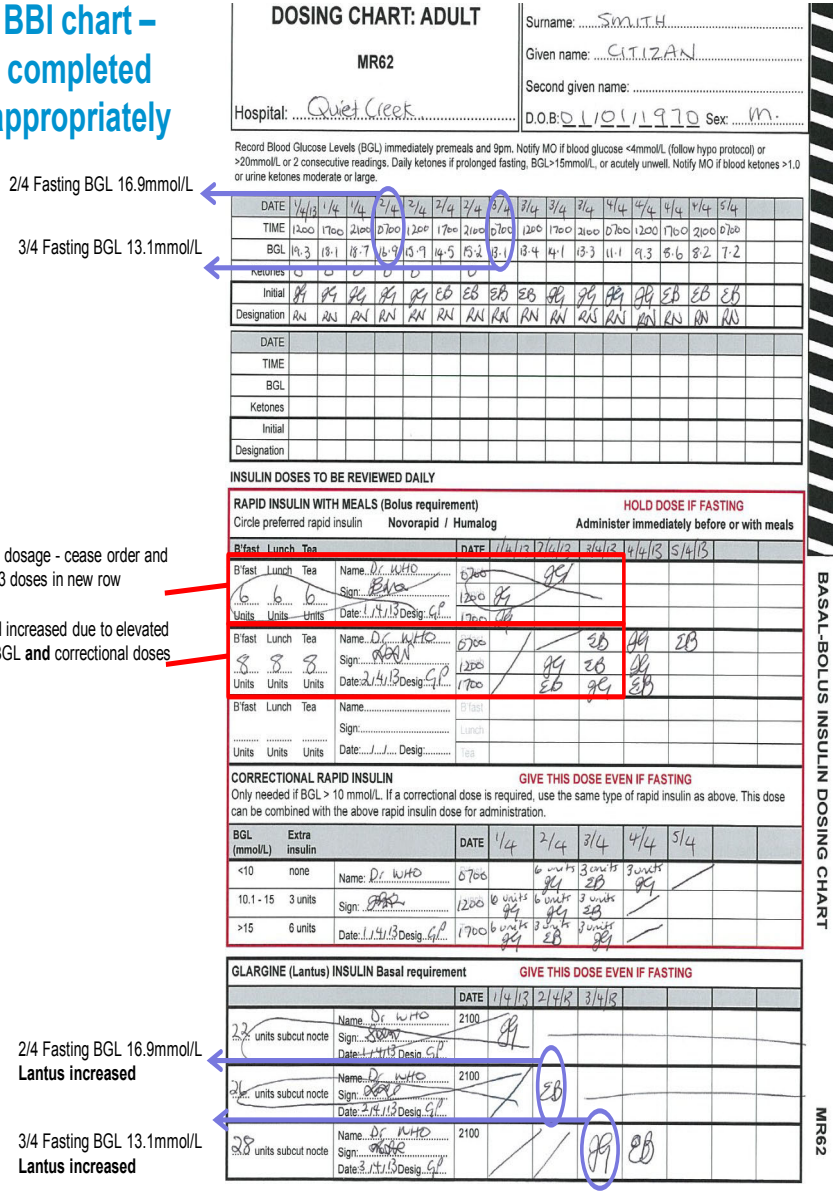
IV regular(actrapid) insulin has a half-life of only 7 minutes with a duration of approximately 1 hr.

IV insulin can only be discontinued once basal insulin has been on-board for 4 hours.

IV insulin adjustments can continue based on blood glucose levels as this ensures adequate insulin coverage during transition to the basal bolus insulin schedule.

Appendix 1 - Example Basal-bolus insulin chart

BBI chart – completed appropriately


DOSING CHART: ADULT
MR62
Hospital: Quiet Creek
Surname: SMITH
Given name: CITIZAN
Second given name:
D.O.B: 01/01/1970 Sex: M
Record Blood Glucose Levels (BGL) immediately premeals and 9pm. Notify MO if blood glucose <4mmol/L (follow hypo protocol) or >20mmol/L or 2 consecutive readings. Daily ketones if prolonged fasting, BGL>15mmol/L, or acutely unwell. Notify MO if blood ketones >1.0 or urine ketones moderate or large.
2/4 Fasting BGL 16.9mmol/L
3/4 Fasting BGL 13.1mmol/L
DATE
TIME
BGL
Ketones
Initial
Designation
INSULIN DOSES TO BE REVIEWED DAILY
RAPID INSULIN WITH MEALS (Bolus requirement)
HOLD DOSE IF FASTING
Circle preferred rapid insulin Novorapid / Humalog
Administer immediately before or with meals
B'fast Lunch Tea
Units Units Units
Name
Sign
Date
Desig
To change dosage - cease order and rewrite all 3 doses in new row
Novo rapid increased due to elevated pre meal BGL and correctional doses required
CORRECTIONAL RAPID INSULIN
GIVE THIS DOSE EVEN IF FASTING
Only needed if BGL > 10 mmol/L. If a correctional dose is required, use the same type of rapid insulin as above. This dose can be combined with the above rapid insulin dose for administration.
BGL (mmol/L)
Extra insulin
<10 none
10.1 - 15 3 units
>15 6 units
GLARGINE (Lantus) INSULIN Basal requirement
GIVE THIS DOSE EVEN IF FASTING
2100
2/4 Fasting BGL 16.9mmol/L Lantus increased
3/4 Fasting BGL 13.1mmol/L Lantus increased
BASAL-BOLUS INSULIN DOSING CHART
MR62

Which patients do I use the BBI chart for?

1. Inpatients with anticipated or current hyperglycaemia where current diabetes therapy is insufficient eg more than one blood glucose levels (BGL) >10 mmol/L within a 24 hour period.
2. Transitioning from an IV insulin infusion.
3. Use instead of subcutaneous sliding scale insulin regimens.

Which patients don't I use it for?

1. Diabetic ketoacidosis or hyperosmolar hyperglycaemic state where insulin infusion is required.
2. Patients who have target blood glucose on their usual treatment (oral and/or insulin). These medications can be written on the National Inpatient Medication Chart.
3. Not to be used in paediatrics.
4. Anticipated length of stay less than 48 hours.

How do I write up and use the BBI chart?

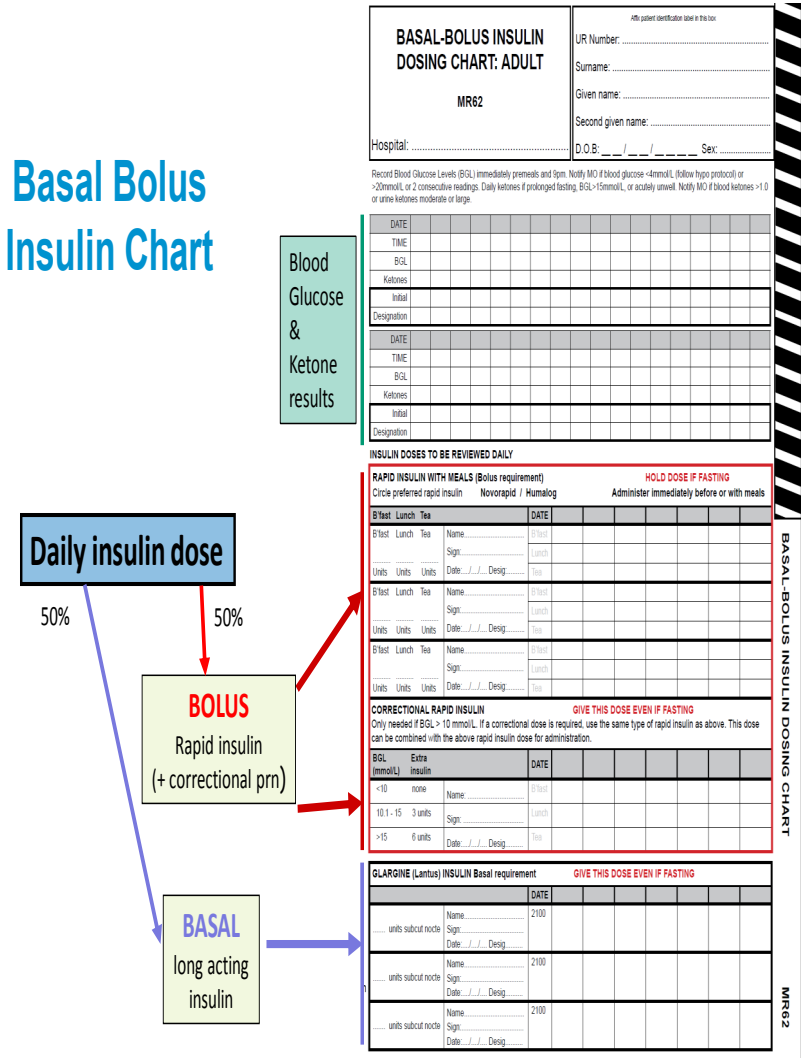
Insulin orders are divided into three sections:

1. bolus (with meal),
2. correctional (if BGL >10mmol/L), and
3. basal insulin (given at 2100).

Prescriber MUST sign all sections of the BBI chart.

'How to use' steps are on the back of the chart.

Highlights of main sections on the chart.



Referral to diabetes educator

Referral to the diabetes educator. Priority for referral includes;

- pre-admission HbA1c above 8.5%
- admission diagnosis of hypoglycaemia or acute hyperglycaemia
- commencement of insulin
- pregnancy or paediatric
- newly diagnosed.

Case scenario

58 year old man, admitted with pneumonia to medical ward. Type 2 diabetes for 5 years. On Metformin 1.0g bd.

- Weight 80kg
- BGL 16.5 on admission
- HbA1c 8.6 % on admission

BBI chart

- Cease metformin
- Estimated insulin 0.4 x 80kgs = 32 units
- Start Glargine insulin 16 units 2100
- Rapid acting insulin 5 units with meals

Prior to discharge

- Recommence metformin
- Commence additional agents to assist with improving glycaemic control (as admission HbA1c 8.6%)
- Refer to diabetes educator

Step 7: Preparing for discharge

The admission HbA1c will assist in determining the best discharge therapy for the person. This is outlined on the back of the form.

HbA1c <7%	-	recommence on usual diabetes treatment.
HbA1c 7- 8%	-	may need increase in usual therapy - arrange follow-up GP appointment.
HbA1c >8%	-	will require increase in usual pre-admission treatment - arrange GP and diabetes education follow up.

Once the patients blood glucose levels are consistently within target, consider transferring to planned discharge therapy. Ideally, this should happen 1-2 days before discharge or when medically stable.

Discharge on oral/injectable agents* without glargine

> reduce night time dose of glargine by 50% and give this as the last dose and commence oral/injectable agents* in the morning (consider eGFR for Metformin dose).

Discharge on glargine with or without other oral/injectable agents*

> administer night time dose of glargine as usual and commence oral/injectable agents* the following day.

Discharge on alternate insulin eg premix or morning glargine

> reduce night time dose of glargine by 50% and commence prescribed insulin and any oral/injectable agents* the following day.

Alternatively patients may require continuation of basal-bolus.

* metformin, sulphonylureas, DPP4 inhibitors, GLP1 injectables, glitazones

Step 1 - Using the chart

1. Cease all regular oral /injectable* agents or subcutaneous insulin.
2. Measure HbA1c to assess pre admission diabetes control.

Step 2 - Calculating total daily insulin

Calculate starting basal and bolus doses of insulin by working out the patient's **total daily insulin dose (TDD)** requirements. Use the table below.

Current diabetes treatment		Total initial daily insulin dose
Diet	-	0.3 units/kg
Oral/injectable agents*	-	0.4 units/kg
Subcutaneous insulin	-	Insulin used in last 24 hours
S/C insulin + oral /injectable agents*	-	Insulin used in last 24 hours + 10%
Intravenous infusion$^{\Delta}$	-	Four times insulin used in last 6 hrs

Examples of how the TDD is calculated:

80kg patient diet-controlled

> TDD = 0.3 x 80kgs = 24 units

90kg patient taking metformin and gliclazide

> TDD = 0.4 x 90kgs = 36 units

75kg patient taking Mixtard 30/70, 40 units mane, 15 units evening. Also taking Metformin BD.

> TDD = 40 + 15 = 55 units

> Add 10% to account for ceasing Metformin = 60 units

* metformin, sulphonylureas, DPP4 inhibitors, GLP1 injectables, glitazones

Δ refer to Appendix 2 for guidance when transitioning from an insulin infusion

Step 3: Calculating basal-bolus split

1. **Glargine (basal)** - Write up 50% of calculated total daily insulin dose as the glargine (basal) dose (bottom of the chart).

GLARGINE (Lantus) INSULIN Basal requirement		GIVE THIS DOSE EVEN IF FASTING							
		DATE							
..... units subcut nocte	Name..... Sign:..... Date:...../...../.... Desig.....	2100							
..... units subcut nocte	Name..... Sign:..... Date:...../...../.... Desig.....	2100							
..... units subcut nocte	Name..... Sign:..... Date:...../...../.... Desig.....	2100							

2. **Rapid insulin with meals (bolus)** - 50% of the calculated total daily insulin dose divided into 3 equal doses of rapid acting insulin (Humalog or NovoRapid) with meals.

3. **Correctional rapid insulin (bolus)** - rapid acting insulin given in addition to meal time bolus is already written up on the chart but it must be signed by the prescriber.

INSULIN DOSES TO BE REVIEWED DAILY

RAPID INSULIN WITH MEALS (Bolus requirement) Circle preferred rapid insulin Novorapid / Humalog				HOLD DOSE IF FASTING Administer immediately before or with meals							
B'fast	Lunch	Tea		DATE							
B'fast ..... Units	Lunch ..... Units	Tea ..... Units	Name..... Sign:..... Date:...../...../.... Desig:.....	B'fast Lunch Tea							
B'fast ..... Units	Lunch ..... Units	Tea ..... Units	Name..... Sign:..... Date:...../...../.... Desig:.....	B'fast Lunch Tea							
B'fast ..... Units	Lunch ..... Units	Tea ..... Units	Name..... Sign:..... Date:...../...../.... Desig:.....	B'fast Lunch Tea							

CORRECTIONAL RAPID INSULIN Only needed if BGL > 10 mmol/L. If a correctional dose is required, use the same type of rapid insulin as above. This dose can be combined with the above rapid insulin dose for administration.			GIVE THIS DOSE EVEN IF FASTING							
BGL (mmol/L)	Extra insulin		DATE							
<10	none	Name:	B'fast							
10.1 - 15	3 units	Sign:	Lunch							
>15	6 units	Date:...../...../.... Desig.....	Tea							

Adjusting insulin doses: examples

ALL BGL's consistently high
Indicates not enough basal insulin, suggest increasing the glargine dose.

Fasting BGL (eg 0700) - the only insulin impacting on this BGL is the glargine. There will be no impact from the rapid acting insulin administered at teatime the night before.
> **high** fasting BGL - increase evening glargine dose
> **low** fasting BGL - decrease evening glargine dose

Lunchtime BGL (eg 1200) - mainly influenced by the breakfast rapid acting insulin dose.
> **high** BGL before lunch - increase breakfast rapid acting insulin
> **low** BGL before lunch - decrease breakfast rapid acting insulin

Teatime BGL (eg 1700) - mainly influenced by the lunch time rapid acting insulin dose.
> **high** BGL before tea - increase lunch rapid acting insulin
> **low** BGL before tea - decrease lunch rapid acting insulin

2100 hours BGL - mainly influenced by the teatime rapid acting insulin dose.
> **high** BGL at 2100 - increase teatime rapid acting insulin
> **low** BGL at 2100 - decrease teatime rapid acting insulin

Step 6: Adjusting insulin doses

The aim of the protocol is to achieve BGLs between 5 and 10 mmol/L without requiring correctional rapid acting insulin. BGLs should be reviewed daily and insulin doses adjusted accordingly.

The table below is located on the back of the form and provides a guide to adjusting the insulin doses.

Time BGL taken	HIGH blood glucose (>10mmol/L)	LOW blood glucose (<4mmol/L)
Before b/fast	Increase glargine	Decrease glargine
Before lunch	Increase b/fast rapid insulin	Decrease b/fast rapid insulin
Before tea	Increase lunch rapid insulin	Decrease lunch rapid insulin
2100 hours	Increase tea-time rapid insulin	Decrease tea-time rapid insulin

General principles
Before adjusting doses review any clinical changes to the patient which may influence insulin requirements eg infection is improving, appetite returning or increasing mobility.

If there is hyperglycaemia
Dose increases are generally between 10-25%. Use the amount and pattern of correctional rapid acting insulin used in the preceding 24-48 hours as a guide.

If there is hypoglycaemia
Reduce the appropriate insulin by 20-25%.

Example: Filling out the form

EXAMPLE: If total daily insulin dose calculated as 24 units

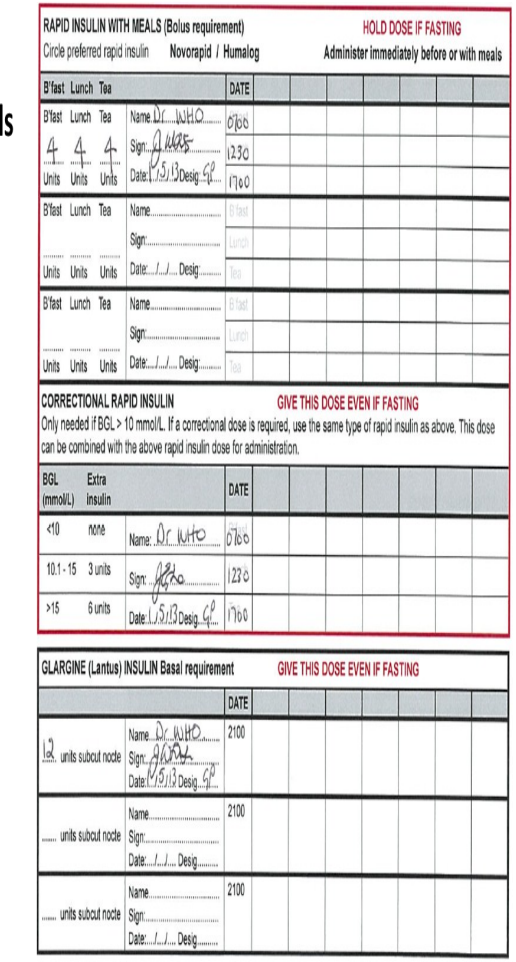
Therefore 50% rapid acting:

Novorapid 4 units TDS with meals

Novorapid supplemental (given in addition to insulin above)

Therefore 50% long acting:

Glargine 12 units at 2100



RAPID INSULIN WITH MEALS (Bolus requirement) — HOLD DOSE IF FASTING
Circle preferred rapid insulin: Novorapid / Humalog — Administer immediately before or with meals

B'fast Lunch Tea | DATE

B'fast Lunch Tea | Name: Dr WHO | Sign: | Date: 1/5/13 Desig: GP
4 Units 4 Units 4 Units | 0700 | 1230 | 1700

B'fast Lunch Tea | Name: | Sign: | Date: / / Desig:
Units Units Units | B'fast | Lunch | Tea

B'fast Lunch Tea | Name: | Sign: | Date: / / Desig:
Units Units Units | B'fast | Lunch | Tea

CORRECTIONAL RAPID INSULIN — GIVE THIS DOSE EVEN IF FASTING
Only needed if BGL > 10 mmol/L. If a correctional dose is required, use the same type of rapid insulin as above. This dose can be combined with the above rapid insulin dose for administration.

BGL (mmol/L)	Extra insulin		DATE
<10	none	Name: Dr WHO	0700
10.1 - 15	3 units	Sign:	1230
>15	6 units	Date: 1/5/13 Desig: GP	1700

GLARGINE (Lantus) INSULIN Basal requirement — GIVE THIS DOSE EVEN IF FASTING

		DATE
12 units subcut nocte	Name: Dr WHO Sign: Date: 1/5/13 Desig: GP	2100
..... units subcut nocte	Name: Sign: Date: / / Desig:	2100
..... units subcut nocte	Name: Sign: Date: / / Desig:	2100

Step 4: Cross reference with the National Inpatient Medication Chart (NIMC)

When a patient is commenced on BBI Dosing Chart there must be a cross reference on the National Inpatient Medication Chart (NIMC).

1. Tick the BGL/insulin box on page 1 of the NIMC.

MEDICATION CHART 1 of 2

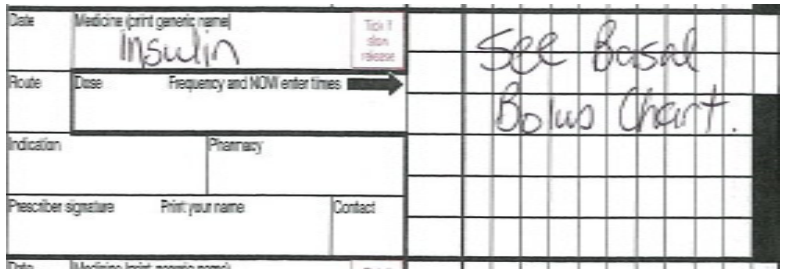
ADDITIONAL CHARTS

☐ IV Fluid ☑ BGL / Insulin ☐ Acute Pain ☐ Clozapine

☐ Palliative Care ☐ Chemotherapy ☐ IV Heparin ☐ Other

2. Cross reference the insulin order in the Inpatient medication chart to ensure insulin is NOT omitted during hospital admission. The authorised prescriber, pharmacist or registered nurse should note in the chart the following;

   > see 'Basal-bolus Insulin Dosing Chart' as below.



Step 5 : Monitoring blood glucose and notification instructions

Blood glucose target
For patients in hospital the recommended target range is **5-10mmol/L**.

Blood glucose monitoring frequency
All patients on the BBI Chart must have their BGL tested pre meals and 2100 hours. Consider testing BGL at 0200 hours if there is a risk of nocturnal hypoglycaemia or patient is fasting.

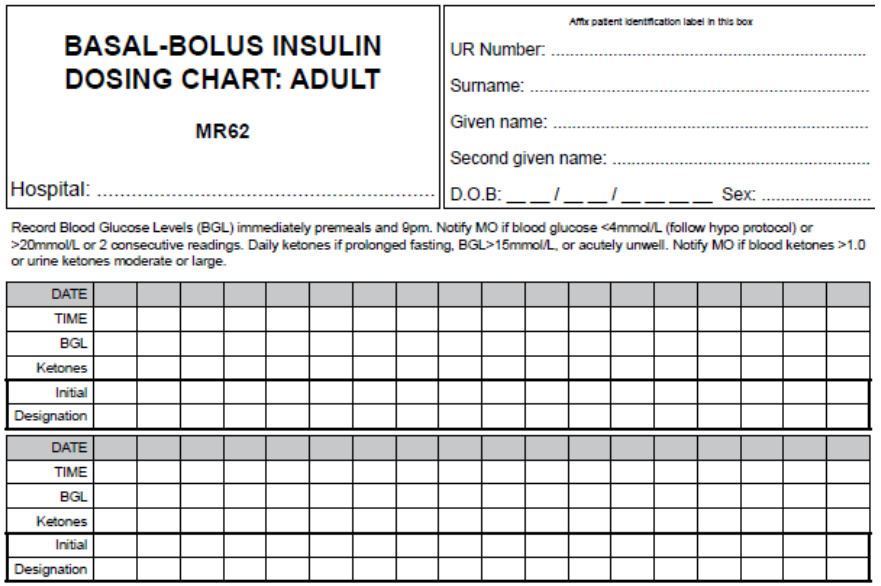
Notification instructions
Nurse to advise the medical officer if BGL is;

> less than 4mmol/L

> above 20mmol/L

> two consecutive readings are greater than 15mmol/L

> blood ketones >1.0mmol/L or urine ketones moderate or large.


BASAL-BOLUS INSULIN DOSING CHART: ADULT

MR62

Hospital: .....

Affix patient identification label in this box

UR Number: .....

Surname: .....

Given name: .....

Second given name: .....

D.O.B: __ __ / __ __ / __ __ __ __ Sex: .....

Record Blood Glucose Levels (BGL) immediately premeals and 9pm. Notify MO if blood glucose <4mmol/L (follow hypo protocol) or >20mmol/L or 2 consecutive readings. Daily ketones if prolonged fasting, BGL>15mmol/L, or acutely unwell. Notify MO if blood ketones >1.0 or urine ketones moderate or large.

DATE																	
TIME																	
BGL																	
Ketones																	
Initial																	
Designation																	

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